

that is substantially free of contrast agent while the initial ultrasonic signal is directed into and along the propagation path.

35. A system according to Claim 13, wherein:

the generating means includes means to generate a series of ultrasonic pulse signals; and

B3 the directing means includes means to direct the series of ultrasonic pulse signals into and along the propagation path in the sample.

36. A system according to Claim 13, wherein the sample linearly reflects the distorted ultrasonic signal produced by the distortion of the initial ultrasonic signal along the propagation path and caused by the sample...

Cancel Claims 24 and 26.

REMARKS

Applicant wishes to note that a Petition has been filed with the Patent office to institute a public use proceeding in connection with the present patent application. Applicant is not aware, at this time, whether that Petition has been granted or denied.

In the Office Action issued on March 19, the Examiner rejected all of the pending claims under 35 U.S.C §103 as being unpatentable over U.S. Patent 5,410,516 (Uhlendorf, et al.) in view of PCT Document WO 91/15999 (Williams). This rejection was made final.

Applicant requests, for the reasons set forth below, that the final nature of the rejection be withdrawn.

In Applicant's previous Amendment, dated September 23, 1997, various claims were amended or rewritten to include limitations already present in other claims. For Example, Claims 2, 8 and 10 were amended to include the limitations of Claim 1; and claims 13, 17 and 21 were amended to include the limitations of Claim 12. Also, limitations of Claims 1 and 9, Claims 1 and 11, Claims 12 and 20, and Claims 12 and 22 were combined into new claims 23, 24, 25 and 26 respectively. It is respectfully submitted, thus, that the rejection of at least Claims 2, 8, 10, 13, 17, 21 and 23-26 was not necessitated by Applicant's Amendment, and that it is appropriate to make the rejection of these claims, as well as the rejection of Claims 27 and 28, non-final.

In the last Office Action, the Examiner commented that Applicant's invention resides in the inhomogeneous focusing properties of finite amplitude distortion and non-linear (higher) harmonics generated thereby. The Examiner noted that the then pending claim language did not necessarily exclude higher order harmonics generated in certain, residual ways at the scatterer. The Examiner further indicated that he believed that a clear recitation of the method and structure as operative on finite amplitude distortion occurring along the propagation path to produce the higher order component image is necessary to avoid this residual interpretive conflict with the prior art.

This opportunity is being taken to amend independent Claims

2 and 13 in accordance with the Examiner's comments. In particular, both of these claims have been amended to indicate that the ultrasonic pulse is directed into and along a propagation path in the sample; and that the sample causes finite, non-linear amplitude distortion of the ultrasonic signal along the propagation path and thereby produces a distorted ultrasonic signal comprised of a first order component signal and higher order harmonic component signals at a first and higher order harmonic frequencies respectively. These claims have been further amended to indicate that the distorted ultrasonic signal is received, including the higher order harmonic components of the reflected distorted ultrasonic signal produced by the distortion of the initial ultrasonic signal along the propagation path and caused by the sample, and that an image is formed principally from one of the received higher order harmonic components of the reflected distorted ultrasonic signal.

Applicant agrees with the Examiner that the prior art of record does not disclose or suggest the above-discussed features of this invention. For instance, Uhlendorf discloses an ultrasonic imaging procedure in which a material is introduced in the examination area to be acoustically irradiated, nonlinear oscillations are produced in that examination area by irradiated ultrasonic waves, and the signal is evaluated by an ultrasonic converter. As the Examiner has recognized, Uhlendorf does not disclose the principal of the method and system of this invention as operative on finite amplitude distortion occurring along the

propagation path to produce the higher order component image. Accordingly, Applicant submits that Claims 2 and 13 as now amended patentably distinguish over the prior art and are allowable.

This opportunity is also being taken to re-present the other claims in this case so as to be dependent from, and allowable with, either Claim 2 or Claim 13. In particular, independent Claims 8, 10, 23 and 27 have been canceled and new claims 29-32 have been substituted therefor respectively. These new Claims are all dependent from and are allowable with Claim 2. Analogously, independent Claims 19, 21, 25 and 28 have been canceled and new Claims 33-36 have been substituted therefor respectively. These new claims are dependent from Claim 13 and are allowable therewith. Claims 24 and 26 have been canceled to reduce the number of pending claims.

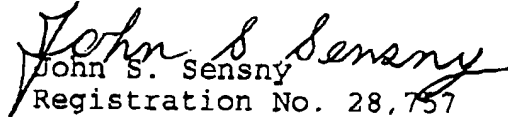
In addition, Claims 3-8 are also dependent from Claim 2 and are allowable therewith, and Claims 14-18 are dependent from and are allowable with Claim 13.

In view of the comments made by the Examiner in the Office Action and the above remarks, Applicant respectfully submits that the present Amendment clearly overcomes the rejection of the claims. Hence, the Examiner is requested to enter the Amendment, to reconsider and to withdraw the rejection of Claims 2-8 and 13-18, and to allow these claims and new Claims 29-36.

Every effort has been made to place this application in condition for allowance. If the Examiner believes that a

telephone conference with Applicant's Attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,


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